BORODKIN, Yu.P.

Relationship between the structure of derivatives of imidazoledicarboxylic diamides and their effect on different segments of the central nervous system. Vest. AMN SSSR 18 no.2: 47-54 '63. (MIRA 17:7)

1. Institut eksperimental'noy meditsiny AMN SSSR.

KOSTIN, E.D.; BORODKIN, Yu.S., kand. med. nauk (Leningrad, S-15, ul. Saltykova-Shchedrina, d. 43-b, kv.30)

Treatment of respiratory disorders with central and reflex action analeptics. Vest. khir. 91 no.8:84-88 Ag'63 (MIRA 17:3)

1. Iz kliniki khirurgicheskikh bolezney (zav. - prof. P.N. Napalkov) Leningradskogo sanitarno-gigiyenicheskogo meditsinskogo instituta i otdela farmakologii (zav. - prof. S.V. Anichkov) Instituta eksperimental'noy meditsiny AMN SSSR.

BORODKIN, Yu.S.; ALLIKMETS, L. Kh.

Interrelations between the "arousal" and "recruiting" systems following the use of various neurotropic agents. Farm. i toks. 26 no.6:643-650 N-D '63 (MIRA 18:2)

1. Otdel farmakologii (zav. - deystvitel'nyy chlen AMN SSSR prof. S.V. Anichkov) Instituta eksperimental'noy meditsiny AMN SSSR, Leningrad.

BORODKIN, Yu.S.; VVEDENSKAYA, I.V.; GRACHEV, K.V.; DUBIKAYTIS, V.V.; DUBIKAYTIS, Yu.V.; STEPANOVA, T.S.

Results of the study of the bioelectric activity of the brain with organic lesions during administration of ethylnorantiffeine. Zhur. nevr. i psikh. 64 no.11:1631-1635 '64.

(MIRA 18:6)

1. Elektrofiziologicheskaya laboratoriya Leningradskogo nauchno-issledovatel'skogo neyrokhirurgicheskogo instituta im. A.L. Polenova (direktor - prof. V.M. Ugryumov) i otdel farmakologii (zaveduyushchiy - prof. S.V. Anichkov) Instituta eksperimental'noy meditsiny AMN SSSR.

BORODKIN, Yu.S.; NASIROV, S.Kh.

Electroencephalographic analysis of the effect of pyrazoledicarboxylic acids on the central nervous system. Farm. i toks. 28 no.1:8-13 Ja-F '65. (MIRA 18:12)

1. Otdel farmakologii (zav. - dyestvitel'nyy chlen AMN SSSR prof. S.V.Anichkov) Instituta eksperimental'noy meditsiny AMN SSSR, Leningrad. Submitted November 5, 1963.

BORODKIN, Yu.V.

Speed up the building of the enterprises of the industrial chemistry, Khim. prom [Ukr.] no.1,3-4 Ja-Mr '65. (MIRA 18:4)

DENISOV, Pavel Stepanovich, kand. sel'khoz. nauk; MAMONOV, Nikolay Nikolayevich, kand.sel'khoz.nauk; YUFEROV, Vasiliy Alekseyevich, kand. sel'khoz. nauk; BORODKINA, L.A., red.; LEVINA, L.G., tekhn. red.

[What are the advantages of green fallowing] Chto daiut zaniatye pary. Moskva, Rossel'khozizdat, 1963. 69 p. (MIRA 17:3)

CHEREMISINOV, Georgiy Andrianovich, doktor sel'khoz. nauk;
BORODKINA, L.A., red.

[Use fertilizers wisely; reference book for compuslory education in agricultural chemistry] Razumno ispol'zovat' udobreniia; posobie dlia agrokhimicheskogo vseobucha. Moskva, Rossel'khozizdat, 1964. 60 p. (MIRA 17:7)

RUSKOV, Valentin Yevdokimovich, kand. sel'khoz. nauk; BORODKINA, L.A., red.; SAYTANIDI, L.D., tekhn. red.

[Using fertilizers on advanced farms in the non-Chernozem zone] Ispol'zovanie udobrenii v peredovykh khoziaistvakh Nechernozemnoi zony. Moskva, Rossel'khozizdat, 1964. 78 p. (MIRA 17:3)

AKISKIN, Grigoriy Alekseyevich; BORODKINA, L.A., red.

[Each farm should be provided with high quality seed] Kazhdomu khoziaistvu - sortovye semena. Moskva, Rossel'khozizdat, 1964. 100 p. (MIRA 17:12)

ZELENETSKAYA, L.V., red.; BORODKINA, L.A., red.

[Manual on carrying out soil analyses and making agrochemical cartograms] Posobie po provedeniiu analizov pochv i sostavleniiu agrokhimicheskikh kartogramm. Moskva, Rossel'khozizdat, 1965. 331 p. (MIRA 18:4)

RYNDIN, Stanislav Dmitriyevich, kand. sel'khoz.nauk; BORODKINA, L.A., red.

[Fertilizers for orchards and soil micro-organisms] Udobrenie sadov i mikroorganizmy pochvy. Moskva, Rossel'khozizdat, 1964. 72 p. (MIRA 18:3)

BODROVA, Yevdokiya Maksimovna, kand. sel'khoz. nauk; OZOLINA, Zoya Dmitriyevna, kand. sel'khoz. nauk; BORODKINA, L.A., red.

[Simultaneous use of organic and mineral fertilizers] Sovmestnoe primenenie organicheskikh i mineral'nykh udobrenii. Moskva, Rossel'khozizdat, 1965. 139 p. (MIRA 18:8)

SAVYCHEV, M.Ya.; BORODKINA, L.A., red.

[Collective fa m fertilizer plant; practices of the "Pamiat' Lenina" Collective Farm in Khotynets District, Orlov Province] Kolkhoznaia fabrika udobrenii; opyt kolkhoza "Pamiat' Lenina" Khotynetskogo raiona Orlovskoi oblasti. Moskva, Rossel'khozizdat, 1965. 33 p. (MIRA 18:10)

BORODKINA, I. B.

RT-1468 (Use of sulfadiamin (preparation "805") in the treatment of pulmonary tuberculosis) Primenenie sul'fodiamina (Preparata "805") pri lechenii tuberkuleza legkikh.
SO: Problemy Tuberkuleza, (2): 41-44, 1944.

AUTHORS: Rozman, B.Yu., Borodkina, L.I. SOV/80-32-2-7/56

TITLE: Inhibition of the Thermal Decomposition of Ammonium Nitrate (Ingibirovaniye termicheskogo razlozheniya ammiachnoy selitry)

PERIODICAL: Zhurnal prikladnoy khimii, 1959, Vol XXXII, Nr 2, pp 280-284 (USSR)

ABSTRACT: The inhibiting effect of urea on the thermal decomposition of ammonium nitrate has been investigated by thermogravimetric and manometric methods. The content of urea in the samples varied from 0.01 - 1%. The inhibiting effect decreases with time due to the decomposition of urea. The inhibiting effect of urea is explained by the production of ammonia due to thermal decomposition of urea. Ammonia neutralizes nitrogen dioxide which decomposes ammonium nitrate as a catalyst. Nitrogen dioxide may also directly react with urea forming nitrogen and carbon dioxide. Urea itself decomposes at 130°C, i.e. at a lower temperature than ammonium nitrate. Its inhibiting effect when dissolved in ammonium nitrate is therefore unexpected. This effect is only present if there is a large excess of ammonium nitrate. The increase of urea

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206510002-5"

Inhibition of Thermal Decomposition of Ammonium Nitrate [illegible]

above 1% is not recommended therefore.
There are 3 graphs, 2 tables, and 3 references, 2 of which are Soviet and 1 English.

SUBMITTED: May 26, 1958

Card 2/2

BORODKINA, M.M.

137-58-1-1782

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 1, p 242 (USSR)

AUTHORS: Borisova, A. K., Borodkina, M. M., Gabrielyan, D. I., Pridantseva, K. S., Solov'yeva, N. A.

TITLE: A New Alloy for Spiral Hair Springs in Clockworks (Novyy splav dlya spiral'nykh pruzhin (voloskov) chasovykh mekhanizmov)

PERIODICAL: Sb. tr. Tsentr. n.-i. in-t chernoy metallurgii, 1956. Nr 15, pp 313-344

ABSTRACT: The effect of deformation and heat treatment on the phase composition and properties of N35KhMV (I) alloy, having a small variation in modulus of elasticity (E) with temperature, were investigated by microstructural, x-ray structural, and chemical phase analysis. It was found that insignificant variations in the composition of a solid solution from the optimal, with respect to Ni and other elements, results in an increase in the variation of E with temperature. I becomes stronger after deformation and tempering due to precipitation out of the γ-solid solution of dispersed carbides $(Cr, Fe, W, Mo)_7C_3$. Without preliminary cold working aging proceeds slowly. Heat treatment of watch hair springs made of I should strictly adhere to procedure. If

Card 1/2

137-58-1-1782

A New Alloy for Spiral Hair Springs in Clockworks

the temperature of heat treatment of a wire 0.3 mm in diameter is increased, the solid solution becomes more highly alloyed and the hair springs become embrittled. I has been adopted for mass production of hair springs. Heat treatment (at 1000°) of wire made of I in vacuum will, if the shape is properly fixed, facilitate the production of high-quality hair springs at watch factories.

M. Sh.

1. Helical springs--Deformation 2. Helical springs--Properties 3. Helical springs--Test methods 4. Helical springs--Test results

Card 2/2

AUTHOR: Borodkina, M.M.

TITLE: Investigation of Ageing of Spring Alloys (Issledovaniye stareniya pruzhinnykh splavov)

PERIODICAL: Fizika Metallov i Metallovedeniye, 1958, Vol 6, Nr 4, pp 700-705 (USSR)

ABSTRACT: The effect of the composition, structure, thermal treatment and deformation on the strength and elastic properties of spring materials based on the iron-nickel-titanium alloys was studied. A systematic investigation of the structural transformations in the Fe-Ni-Ti alloys containing 30-42% Ni, and up to 6% Ti was carried out, and the effect of chromium and aluminium on the age-hardening of these alloys was examined. In all, 24 alloys were investigated (for composition see Tables 1 and 2). They were prepared from high purity materials and melted under argon, in a H.F. induction furnace. The round (3 kg) ingots and flat (1 kg) skillets, annealed by holding for 6 hrs at 1000°C and cooling at the rate of 50°C/hr, were used for the preparation of the experimental test pieces in the form of 8 mm diameter wire, and strips characterised by

Investigation of Ageing of Spring Alloys

various degrees of plastic deformation. For the annealing (6 hrs at 1000°C), solution-treatment (15 min at 1100°C, water quench), and age-hardening (4 hrs at various temperatures) operations, the test pieces were sealed in evacuated quartz ampules. X-ray diffraction techniques were used for the phase analysis of the alloys and of hard particles of the precipitated phase obtained by an electrolytic extraction method, as well as for accurate determination of the lattice parameter of the solid solution. In addition, the microstructure of the alloys was examined and their hardness, strength, modulus of elasticity and magnetic properties were measured. The results of the X-ray analysis are given in Table 1 (Columns 5 and 6). The presence of the magnetic α phase in alloys of group 1 and 11 was confirmed by the results of the magnetic measurements. In the solution-treated condition, all alloys consisted of one phase only (Fig.2a). With the increasing titanium content, the tendency of the alloys to age-harden increased as was shown by the variation of their hardness

Investigation of Ageing of Spring Alloys

and lattice parameter. In the annealed or aged alloys, laminae of the precipitated intermetallic compound were observed (Fig.2b, B and ?), with the degree of decomposition of the solid solution increasing with increasing titanium content. Chemical analysis showed that the precipitated phase consisted of traces of carbides, intermetallic compound containing 25 at % Ti, nickel and a small proportion of iron. According to the results of the X-ray measurements the precipitated phase contained an insignificant amount of TiC_x and the ε-phase (intermetallic compound Ni_3Ti) with no iron compounds. From this it was concluded that some Ni atoms in the Ni_3Ti compound are substituted by Fe atoms and that the precipitated phase can be represented as $(Ni, Fe)_3Ti$ with the hexagonal crystal structure and the lattice parameters equal a = 5.093 KX, c = 8.276 kX and c/a = 1.625 . On the basis of the results of the phase analysis, new phase boundaries were drawn on the appropriate portion of the constitutional diagram of the Fe-Ni-Ti system proposed by Vogel and Wallbaum (Ref.1), Fig.1: According to the findings of the present

Investigation of Ageing of Spring Alloys

author, the region of the γ solid solution is considerably smaller (bounded by the line AK) than that postulated by Vogel and Wallbaum (area ABCD). In addition, the region of age-hardenable alloys begins at considerably lower titanium content and there is a three phase region ($\alpha + \gamma + \varepsilon$) not shown on the earlier diagram. Within the region of the studied compositions there is no intermetallic compound Fe_2Ti (phase η). Alloys containing up to 40% Ni undergo a $\gamma \rightarrow \alpha$ transformation: The higher the nickel content, the higher is the content of titanium necessary for this transformation to take place (line AC, Fig.1). The other results can be summarised as follows: Deformation before ageing accelerates the age-hardening process, decreases the size of the precipitated ε phase (Fig.2, a), intensifies the decomposition of the solid solution (Table 3) and increases the strength and hardness of the aged alloys. The presence of chromium and aluminium additions in the alloy containing 36% Ni and 3.5% Ti does not affect the nature of the precipitated phase (Al enters the γ solid

Investigation of Ageing of Spring Alloys

solution; an insignificant proportion is dissolved in the ε phase). Chromium added on its own decreases the degree of decomposition of the solid solution, increases the particle size of the precipitated phase which in its presence is more uniformly distributed. On the other hand, aluminium increases the degree of decomposition of the solid solution and decreases the particle size of the ε phase in spite of the fact that in the presence of aluminium it is precipitated preferentially at the grain boundaries. In the presence of both these additions the fine particles of the ε phase are uniformly distributed throughout the alloy. The optimum ageing conditions for all the investigated alloys is 4 hrs at 700°C (Fig.3), maximum hardness of about 350 kg/mm^2 being attained by the alloy containing 36% Ni, 3.8% Ti, 12.6% Cr and 0.7% Al. In the case of the industrial (Ni-Cr-Ti) alloy 36NKhT, the maximum values of hardness, strength and modulus of elasticity

Investigation of Ageing of Spring Alloys

are attained in the presence of 1.5% Al and 12% Cr. There are 3 figures, 3 tables and 4 references of which 2 are Soviet, 1 German and 1 English.

ASSOCIATION: Institut Pretsizionnykh Splavov TSNIICHM (Institute of Precision Alloys, TSNIChM)

SUBMITTED: 31st January 1957.

Card 6/6

SOV/126-6-5-9/43

AUTHORS: Borodkina, M.M., and Gromov, N.P.

TITLE: Study of the Texture of a 50% Fe-50% Ni Alloy in the Form of Strip of Various Thicknesses (Izucheniye tekstury splava 50% Fe-50% Ni v vide lenty razlichnoy tolshchiny)

PERIODICAL: Fizika Metallov i Metallovedeniya, 1958, Vol 6, Nr 5, pp 819 - 824 (USSR)

ABSTRACT: The deformation and recrystallisation textures of strip of various thicknesses of the alloy 50NP (Permalloy) was studied by the pole figure method. Strip of thickness 0.05, 0.02, 0.01 and 0.005 mm was obtained by hot rolling without intermediate annealing. Two series of X-ray photographs, in which the specimen was turned through 10^{o} between each exposure, were used to construct pole figures taken at a vertical and horizontal position to the rolling direction. The texturegraphs were taken by a Laue-type camera in a Mo-irradiation. For the study of the texture of different layers, the strip specimen was electrolytically polished. The most pronounced orientations were found to be (110) $[1\bar{1}2]$, (112) $[\bar{1}11]$ and (236) $[5\bar{3}3]$.

On annealing a strip of 0.05 mm thickness, a distinct

Card1/3

Study of the Texture of a 50% Fe-50% Ni Alloy in the Form of Strip of Various Thicknesses

cubic recrystallisation texture, (001) [100], forms. The difference in deformation texture between strip of 0.005 mm and 0.05 mm thickness consists in the orientation (110) [$\bar{1}$12] being less pronounced and the number of disorientated crystals being greater in the thinner strip (see Figure 1). A decrease in strip thickness from 0.5 to 0.005 mm leads to gradual disappearance of recrystallisation texture (see Figure 4). The method of deformation influences the deformation texture and the effect of recrystallisation texture disappearance in a very thin strip (see Figure 8). The reason for the disappearance of recrystallisation texture appears to be the part played by the surface layers of a very thin strip, which are characterised by a weakening in the orientation (110) [$\bar{1}$12] and by an increase in the number of disorientated crystallites (see Figure 9). Figures 2 and 3 represent pole figures of deformed strip of 0.05 and 0.005 mm thickness, respectively, and Figures 5 and 7 pole figures of annealed strip of 0.05 mm and 0.003 mm thickness, respectively.

SOV/126-6-5-9/43

Study of the Texture of a 50% Fe-50% Ni Alloy in the Form of Strip of Various Thicknesses

There are 9 figures and 5 references, 3 of which are Soviet, 1 German and 1 English.

ASSOCIATION: Institut pretsizionnykh splavov TsNIIChM (Institute of Precision Alloys of TsNIIChM)

SUBMITTED: January 31, 1957

Card 3/3

BORODKINA, M.M.

Attachment to the URS 50I apparatus for studying texture. Zav. lab. 24 no.5:638-639 '58. (MIRA 11:6)

1. TSentral'nyy nauchno-issledovatel'skiy institut chernoy metallurgii.

(Radiography) (Metals--Testing)

SOV/126-7-2-9/39

24(2), 18(3), 18(7)

AUTHORS: Borodkina, M. M., Detlaf, Ye. I. and Selisskiy, Ya.P.

TITLE: Recovery and Recrystallisation in the Ordering Alloys Fe-Co (Vozvrat i rekristallizatsiya v uporyadochivayushchikhsya splavakh Fe-Co)

PERIODICAL: Fizika Metallov i Metallovedeniye, 1959, Vol 7, Nr 2, pp 214-224 + 1 plate (USSR)

ABSTRACT: The results of an investigation carried out with the aim of elucidating the characteristics of recovery of the initial stage of recrystallisation of Fe-Co alloys in relation to cobalt content are described in this paper. Alloys, the compositions of which are shown in Table 1, were cast from Armco iron and cobalt K-1 into ingots weighing 1 kg. These were forged at 1180°C into billets and subsequently rolled at 1100 to 1150°C into strip of 3 mm thickness. The hot rolled strip was cut into squares which were water quenched from 900°C and cold rolled to thicknesses of 0.5 and 0.1 mm. Square specimens 20 x 20 mm were cut from the cold rolled strip. These were sealed in evacuated quartz ampules and annealed at temperatures of: 150, 300, 400, 450, 500, 550, 600, 700 and 750°C,

Card 1/6

at which they were soaked for 5, 10 and 15 mins, 1 and 2 hours. In special cases the soaking time was 8 hours. Cooling was carried out in air. Specimens of 0.5 mm thickness were used for hardness tests on a Vickers machine using a load of 5 kg and for an X-ray investigation in a RKE camera for rapid exposure (Ref 2) and in a KROS camera. Exposure in this case was carried out in a Co irradiation, both the adaptor and the specimen were rotated. The distances between the object and the film was 100 mm. In the X-ray photographs the K_α-doublet lines from the plane (013) were visible which in the case of deformed specimens appeared diffuse and merged into the background of the X-ray picture. An increase in Co content of Fe-Co alloys above 25% is associated with a decrease in lattice parameter (Ref 3), as a result of which the doublet of (013) shifts in the direction of large Bragg angles - for a 25% Co alloy $\vartheta = 81^\circ$, for a 75% Co alloy $\vartheta = 86^\circ$. For this reason the sensitivity of the method to change in line width was great and increased with increasing Co content. In order to estimate the

Recovery and Recrystallisation in the Ordering Alloys Fe-Co

changes in width and intensity of the doublet line during annealing, the X-ray films were photometered in the micro-photometer MF-4. The beginning of recrystallisation was indicated by the appearance of separate interference spots in the doublet line on exposure to the KROS camera with a rigid specimen and adaptor. Besides, specimens of 0.1 mm thickness were investigated in a Mo irradiation in a camera with a flat adaptor in order to obtain textural X-ray pictures at an object-film distance of 60 mm. Here the interference rings of the (011), (002) and (112) planes were clearly apparent, from which the nature of the texture obtained could be established and the progress of recrystallisation could be seen. In Fig 1 the annealing temperature and minimum soaking time required for the appearance of the maxima $K_{\alpha 1}$ and $K_{\alpha 2}$ in the photometric curve is shown in relation to the Co content of the alloy. Fig 2 shows micro-photometric curves for alloys with different Co content which have been annealed at 400°C for 30 mins. Figs 3 and 4 show micro-photometric curves for 65% Co and

Recovery and Recrystallisation in the Ordering Alloys Fe-Co

35% Co alloys respectively which had been annealed at various temperatures and for various soaking times. Fig 5 shows micro-photometric curves for a 42% Co alloy which had been annealed at various temperatures for 2 hours. Fig 6 shows the temperature ranges of recovery and recrystallisation of alloys with differing Co contents: I - $K_{\alpha 1}$ and $K_{\alpha 2}$ maxima; II - sharp $K_{\alpha 1}$ and $K_{\alpha 2}$ maxima; III-appearance of separate interference spots in the ring; IV - complete disappearance of the continuity of the ring. The region of supplementary diffuseness of the interference lines is indicated by brackets. On the basis of their experiments, the authors arrived at the following conclusions:
1) A relationship between the temperature range of recovery and the composition of the Fe-Co alloys investigated has been established. The beginning of the breaking up of the K_{α} doublet in X-ray photographs, characterising the initial stage of recovery, is observed at very low temperatures in alloys of the stoichiometric compositions Fe_3Co, FeCo and $FeCo_3$. This

is due to the fact that in a number of solid solutions, the ordering alloys after deformation are thermodynamically least stable.
2) All cold deformed Fe-Co alloys containing between 25 and 75% Co can harden on low temperature annealing. The hardening takes place at annealing temperatures which are not high enough to give a broken up doublet. This hardness is due to ordering in the non-uniformly stressed lattice and formation of mixed regions of a different degree of ordering. In spite of some increase in stress in the distortion of the lattice at various intervals of the ordering process which brings about hardening, the process on the whole must lead to a decrease in free energy.
3) In alloys containing 35 and 42% Co the repeated diffuseness of the doublet coincides in temperature with a retardation in the fall of hardness after attaining a maximum in hardness-annealing temperature curves (35% Co) or even with the appearance of a second maximum (42% Co). The effect described takes place in the transformation range which was found by Masumoto,

Recovery and Recrystallisation in the Ordering Alloys Fe-Co

Saito and Shinozaki (Ref 4) by means of thermal capacity measurements.
4) Recrystallisation in the ordering Fe-Co alloys commences at order-disorder transformation temperatures. Recrystallisation commences at the highest temperature in an alloy of the stoichiometric composition FeCo.
There are 9 figures, 2 tables and 6 references, 2 of which are Soviet, 4 English.

ASSOCIATION: Institut pretsizionnykh splavov TsNIIChM
(Institute of Precision Alloys TsNIIChM)

SUBMITTED: May 14, 1957

Card 6/6

67768

18.7500
18.5110

SOV/126-8-5-21/29

AUTHORS: Borodkina, M.M., and Gromov, N.P.

TITLE: Study of Deformation and Recrystallization Textures of an Iron-Nickel Alloy (48% Ni) in Relation to the Degree of Deformation in Cold Rolling

PERIODICAL: Fizika metallov i metallovedeniya, Vol 8, 1959, Nr 5, pp 761-769 (USSR)

ABSTRACT: The alloy was made in an induction furnace and had the following composition (wt.%): 47.75% Ni, 0.03% C, 0.55% Mn, 0.22% Si, 0.007% S, remainder iron. As a result of forging and hot rolling a strip of 6 mm thickness was obtained. By means of cold rolling the annealed isotropic cold-rolled material, strips of the alloy to be investigated were obtained, of approximately 50 μ thickness, with a reduction of between 11 and 99.4%, and of 5 μ thickness, with a reduction of between 73.7 and 99.92%. The initial thickness of the rolled material was between 19 μ and 6 mm (Table 1). Rolled materials of various thickness without preferential orientation were obtained by cold working with a reduction not exceeding 60% and subsequent annealing at 950 °C. The hot-rolled annealed strip of 6 mm thickness

Card 1/4

Study of Deformation and Recrystallization Textures of an Iron-Nickel Alloy (48% Ni) in Relation to the Degree of Deformation in Cold Rolling

was also isotropic. The isotropy of the rolled material was verified by X-ray photographic and ionization methods. Annealing was carried out in a vacuum container (10^{-2} mm Hg) at 1100 °C for one hour; cooling was carried out at the rate of 100 °C/hour down to 600 °C; thereafter the container was cooled in air. Measurement of magnetic properties was carried out by a ballistic method. For the study of texture, besides the X-ray photographic method an X-ray ionization method with construction of quantitative pole figures was applied. Recording of intensity during exposure for the construction of entire pole figures was carried out by means of a texture attachment to the apparatus URS-50I (Ref 2). The intensity for a standard specimen free from texture, made from powder of the alloy under investigation and having an absorption factor identical with that of the investigated specimen, μt (μ - coefficient of linear absorption, t - thickness of the specimen) was taken as unity. Standard specimens were

Study of Deformation and Recrystallization Textures of an Iron-Nickel Alloy (48% Ni) in Relation to the Degree of Deformation in Cold Rolling

also used for determination of corrections associated with drop in intensity with increase in the angle of deflection of the specimen. Figs 1 and 2 are X-ray patterns of specimens deformed to various degrees of reduction and of the same specimens after annealing at 1100 °C; the thickness of the specimens in Fig 1 is 50 μ and that in Fig 2, 5 μ. Figs 3 and 5 are pole figures of deformed (upper row) and annealed (lower row) strips; the thickness of strip in Fig 3 is 50 μ and that in Fig 5 is 5 μ. Fig 4 shows orientations of the texture of Fe-48% Ni alloy. The results of measurements of magnetic properties of the annealed specimens of 50 μ thickness were found to be in good agreement with the change in texture (Table 2). The authors arrive at the following conclusions: 1) as the degree of deformation increases a change in the intensity ratio of the orientations takes place. 2) after annealing a cubic recrystallization texture is observed only when as a result of deformation the texture with the intense

Study of Deformation and Recrystallization Texture of an Iron-Nickel Alloy (48% Ni) in Relation to the Degree of Deformation in Cold Rolling

components (110) [1$\bar{1}$2] and (110) [3$\bar{3}$5] is formed, which corresponds to a deformation of 99.0%. Further increase in deformation leads to a weakening of the orientations (110) [1$\bar{1}$2] and (110) [3$\bar{3}$5], and after annealing, to a weakening of the cubic recrystallization texture (100) [001] and a fall in magnetic properties. 3) Not only the texture of the surface layers but also an excessive degree of deformation affects the cubic texture of a strip of 5 μ thickness. 4) The nature of the strip texture change of a Fe-Ni alloy (48% Ni) with increase in degree of deformation appears to indicate that the formation and growth of recrystallization nuclei during annealing takes place in an orientated manner.

Card 4/4

There are 5 figures, 2 tables and 15 references, of which 5 are Soviet, 3 German, 6 English and 1 French.

ASSOCIATION: TsNIIChM

SUBMITTED: January 10, 1959

24 (2), 24 (6)

AUTHORS: Borodkina, M. M., Detlaf, Ye. I., Selisskiy, Ya. P.

SOV/48-23-5-22/31

TITLE: X-ray Investigation of Interrelation in Processes of Recovery, of Recrystallization and of Ordering in the Alloys Fe-Co and Ni-Fe (Rentgenograficheskoye issledovaniye vzaimosvyazi protsessov vozvrata, rekristallizatsii i uporyadocheniya v splavakh Fe-Co i Ni-Fe)

PERIODICAL: Izvestiya Akademii nauk SSSR. Seriya fizicheskaya, 1959, Vol 23, Nr 5, pp 640 - 642 (USSR)

ABSTRACT: The increase of free energy in low-temperature deformation by tensions of the 2nd kind and the increase of the surface tension occur in consequence of texture destruction. For a number of solid solutions, the increase of free energy is related to the stoichiometric energy. These relations are shown in a diagram (Fig 1), in which the solid solution consists of the components A and B. In the case of low-temperature deformation, an increase by the quantity ΔE_m occurs in the free energy of the solid solution which differs considerably from the stoichiometric composition AB. The free energy of the stoichiometric

composition changes by ΔE_n, and the total change of free energy is equal to the sum of both these quantities. Thermodynamic considerations are then made of the recovery, recrystallization and ordering. Next, the results of the radiographic investigation of the recovery and recrystallization of the alloys in question are dealt with. The relationship between recovery and the tensions of the 2nd kind and the distortions of the 3rd kind, revealed by an amplification of the radiographic lines, is made use of. A diagram (Fig 2) shows the microphotometrically plotted curves of the K_α doublet for three Fe-Co alloys, annealed for 30 minutes at 400°C. From the shape of these lines conclusions are drawn as to the stage of recovery. Figures 3 and 4 show series of roentgenograms of the alloys Fe-Co and Ni-Fe, annealed at various temperatures and different compositions. Conclusions as to the stage of recrystallization are drawn on the strength of the interference spots observable here.

X-ray Investigation of Interrelation in Processes of Recovery, of Recrystallization and of Ordering in the Alloys Fe-Co and Ni-Fe SOV/48-23-5-22/31

There are 5 figures and 5 references, 2 of which are Soviet.

ASSOCIATION: Institut metallurgii im. A. A. Baykova Akademii nauk SSSR (Institute of Metallurgy imeni A.A. Baykov, Academy of Sciences, USSR)

Card 3/3

S/137/61/000/008/024/037
A060/A101

AUTHORS: Borodkina, M. M., Golovanenko, S. A., Sol'ts, V. A.

TITLE: Structural transformations in the alloy K40HXM (K40NKhM) in the region of temperatures of hot deformation

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 8, 1961, 21, abstract 8Zh146 ("Sb. tr. Tsentr. n.-i. in-t chernoy metallurgii", 1959, no. 22, 71-80)

TEXT: A determination was carried out of the mechanical properties at room temperature after various heat-treatments, of the mechanical characteristics at high temperatures, and of the electrical resistivity. Microstructure, X-ray crystallographic and phase analyses were carried out. It was established that the alloy K40NKhM undergoes structural transformations at temperatures $< 1,050^{\circ}C$, connected with decomposition of the solid solution and the separation of a carbide of the type $(Cr, Fe, Mo)_{23}C_6$. The decomposition proceeds most intensely under deformation in the range $1,050 - 900^{\circ}C$, which may lead to the formation of cracks under hot deformation. Therefore the temperature of the end of the hot deformation of that alloy should be $\geq 950^{\circ}C$.

[Abstracter's note: Complete translation]

L. Vul'f

Card 1/1

BORODKINA, M.M.; MAKHUKOV, N.G.; SOL'TS, V.A.

Hardening of the K40MKhM alloy for springs. Sbor.trud.TSNIICHM no.22:81-90 '59. (MIRA 13:6)
(Cobalt-nickel-chromium alloys--Hardening)

S/058/61/000/010/071/100
A001/A101

AUTHOR: Borodkina, M.M.

TITLE: Texture attachment to the УРС-50И (URS-50I) X-ray installation and studying textures of deformations in thin strips of 50НП(50NP) alloy

PERIODICAL: Referativnyy zhurnal.Fizika, no.10, 1961, 239, abstract 10E50 ("Sb. tr. Tsentr. n.-i. in-t chernoy metallurgii", 1960, no. 23, 174-182)

TEXT: The author describes the design of an attachment for studying textures, which makes it possible to obtain a complete polar figure, by combining two types of filming: "for translucence" and "for reflection". Geometry of filming is explained. When the roentgenogram of a relatively coarse-grained material is taken, the reciprocating motion of the specimen in its plane can be performed by ± 5 mm per 1 sec. The texture of strips of the 50NP alloy, 50 and 5 μ thick, was studied.

M. Borodkina

[Abstracter's note: Complete translation]

Card 1/1

BORODKINA, M.M.; BULYCHEVA, Z.N.; SELISSKIY, Ya.P.

Investigating the texture and anisotropy of magnetostricion in Fe-Al and Fe-Cr alloys. Fiz.met.i metalloved. 9 no.3: 390-399 Mr '60. (MIRA 13:6)

1. Institut pretsizionnykh splavov i TSentral'nyy nauchno-issledovatel'skiy institut chernoy metallurgii.
(Iron-aluminum alloys--Metallography)
(Iron-Chromium alloys--Metallography)
(Magnetostriction)

Borodkina, M.M.

PHASE I BOOK EXPLOITATION SOV/3595

Moscow. Tsentral'nyy nauchno-issledovatel'skiy institut chernoy metallurgii. Institut pretsizionnykh splavov

Pretsizionnyye splavy (Precision Alloys) Moscow, Metallurgizdat, 1960. 283 p. (Series: Its: Sbornik trudov, vyp. 23) Errata slip inserted. 2,525 copies printed.

Additional Sponsoring Agency: USSR. Gosudarstvennaya planovaya komissiya.

Ed.: D.I. Gabrielyan; Ed. of Publishing House: Ye.I. Levit; Tech. Ed.: Ye.B. Vaynshteyn.

PURPOSE: This book is intended for engineers and scientific personnel in the metallurgical, instrument-production, and electrical-equipment industries, as well as for industrial personnel engaged in the production of precision alloys. It may also be useful to students attending advanced technical schools.

COVERAGE: The articles in this collection present the results of investigations conducted in recent years by the Central Scientific Research Institute of Ferrous Metallurgy (Tsentral'nyy nauchno-issledovatel'skiy institut chernoy metallurgii). The articles deal with industrial techniques of producing soft magnetic alloys, properties and structure of the alloys at extremely low temperatures and in high-frequency magnetic fields, deformation textures, magnetostriction, the galvanomagnetic effect, volume changes, etc. Some articles are concerned with the investigation of deformed hard magnetic alloys. No personalities are mentioned. The articles are accompanied by references, both Soviet and non-Soviet.

69691
S/126/60/009/03/014/033
E111/E452

18.5110
18.1140

AUTHORS: Borodkina, M.M., Bulycheva, Z.N. and Selisskiy, Ye.P.

TITLE: Investigation of the Texture and Anisotropy of Magnetostriction of Fe-Al and Fe-Cr Alloys

PERIODICAL: Fizika metallov i metallovedeniye, 1960, Vol 9, Nr 3, pp 390-399 (USSR)

ABSTRACT: Expansion in the field of ultrasonics requires increased supplies of alloys with a high magnetostriction in the polycrystalline state. At present types K65 and K50F2 iron-cobalt alloys are used but their cobalt-content makes them expensive. In the present investigation, the possibility was studied of producing a texture of the type (110)[001] and (100)[001] in Fe-Al alloys with 10 wt% Al (type Yu10) and Fe-Cr with 14% Cr (type Kh14) by varying cold-rolling and final heat-treatment conditions. The anisotropy of magnetostriction after various final heat treatments was investigated as well as the texture. The alloys (Table 1 gives their compositions) were induction melted at the Experimental Works of TsNIIChM. Ingots were forged into 25 x 100 x 200 mm sheet bars at 1050 to 1100°C,

Card 1/4

S/126/60/009/03/014/033
E111/E452

Investigation of the Texture and Anisotropy of Magnetostriction of Fe-Al and Fe-Cr Alloys

hot rolled preheated to 1000 to 1500°C to 2.5 to 3 mm and then cold rolled to 30 to 100 microns by one of the following procedures: repeated cold rolling with reductions of 50 to 60% to 0.10 mm with several intermediate heat treatments in hydrogen at 900°C for 20 min; double cold rolling with 80 and 90% reduction with a 90 minute intermediate heating in hydrogen at 850°C; cold rolling with an overall reduction of 95.6 to 99% to the final strip without intermediate heat treatment. Texture was studied before rolling and at different stages of rolling with electrolytic polishing; an X-ray photo-method with a Laue camera was used, reflections from grains situated within an area of 69 cm^2 of irradiated surface of a strip surface being integrated during an exposure. Fig 1 shows X-ray diffraction patterns at different stages of rolling by the first variant, those for the third are shown in Fig 3. Fig 2 gives polar figures obtained with the second variant. Wire strain gauges were used for studying

69691
S/126/60/009/03/014/033
E111/E452

Investigation of the Texture and Anisotropy of Magnetostriction of Fe-Al and Fe-Cr Alloys

magnetostriction along, across and at 45° to direction of rolling. Fig 4 shows magnetostriction as functions of field strength for the three directions for the aluminium and chromium alloys (left and right-hand figures respectively). The authors conclude that the texture is characterized by three main orientations: (100) [011], (111) [112] and (112) [110]. There is a definite relation between orientations of the deformation and recrystallization texture: enhancement of the (111) [112] orientation leads to development after annealing of (110) [001] and (100) [001] orientations, this being attained by rolling according to the first variant; the more often the procedure is repeated the stronger the texture and the greater the magnetostriction along and across the direction of rolling; the second variant tends to enhance the (112) [110] orientation, with the development after final annealing of complex orientations not conducive to the required magneto-striction anisotropy; single rolling with a reduction

Card 3/4

69661
S/126/60/009/03/014/033
E111/E452

Investigation of the Texture and Anisotropy of Magnetostriction of Fe-Al and Fe-Cr Alloys

of 90 to 96% without intermediate annealing gives a pronounced (100) [011] orientation which partially survives annealing and gives maximum anisotropy at 45° to the direction of rolling; with 98 to 99% deformation single rolling enhances the (112) [110] orientation but gives after annealing complex orientations unfavourable to magnetostriction anisotropy. Only treatment of the first-variant type is satisfactory for the test alloys. There are 4 figures, 6 tables and 7 references, 2 of which are Soviet, 2 English and 3 German.

ASSOCIATION: Institut pretsizionnykh splavov TsNIIChERMET
(Institute of Precision Alloys of TsNIIChERMET)

SUBMITTED: September 16, 1959

Card 4/4

S/032/60/026/04/32/046
B010/B006

AUTHOR: Borodkina, M.M.

TITLE: Cameras and Attachments for Investigating the Texture of Coarse-grained Specimens

PERIODICAL: Zavodskaya laboratoriya, 1960, Vol. 26, No. 4, pp. 491-494

TEXT: For examining the texture of recrystallization of wires with grains varying between 0.03 and 0.1 mm, a special X-ray camera (Fig. 1) was designed (in collaboration with M.A. Dontsov). For structural investigations of recrystallization of polycrystalline specimens with grain sizes above 0.09 mm, two attachments (Figs. 2 and 3) were constructed for the KROS-1 camera which was thus converted to a Laue camera. While taking the photograph, the wire specimen can be rotated at a speed of 2 rpm and shifted in the longitudinal direction at a speed of 0.1 mm/min inside the camera. Specimen elongation is effected by a weight. Since Debye rings do not appear on the X-ray picture at grain sizes exceeding 0.09 mm, and the Laue patterns of some grains overlap, the attachments (Figs. 2,3) were designed for summing the reflections of

Card 1/2

Cameras and Attachments for Investigating the Texture of Coarse-grained Specimens

S/032/60/026/04/32/046
B010/B006

several grains. One of the attachments is adapted for specimen strips, and the other for specimen bands (up to a thickness of 0.1 mm). A reversible motor of the type D-32 is used for shifting the specimen while the photograph is being taken. The first-mentioned attachment was used to investigate specimens of an Fe-Al alloy (10% Al, grains up to 0.5 mm). An orientation of the type Goss (110) [001] and a cubic orientation (100) [001] were found for this alloy. The second attachment was used to take X-ray pictures of a specimen of an Fe-Si alloy (3.05% Si, grains up to 0.6 mm). X-Ray pictures of the Fe-Al alloy, annealed for 2 h at 900° (Fig. 4) and the Fe-Si alloy, annealed for 10 h at 1100° (Fig. 5) are shown. There are 5 figures and 1 Soviet reference.

ASSOCIATION: Tsentral'nyy nauchno-issledovatel'skiy institut chernoy metallurgii (Central Scientific Research Institute of Ferrous Metallurgy)

Card 2/2

BULYCHEVA, Z.N.; BORODKINA, M.M.

Investigating texture and magnetostriction in alloys of the system Fe - Al. Sbor. trud. TSNIICHM no.25:146-157 '62. (MIRA 15:6)

(Iron-aluminum alloys--Metallography) (Magnetostriction)

KADYKOVA, G.N.; SOSNIN, V.V.; BORODKINA, M.M.

Texture of a thin transformer steel strip. Sbor. trud. TSNIICHM no.25:238-243 '62. (MIRA 15:6)
(Steel--Metallography) (Rolling (Metalwork))

S/032/62/028/006/014/025
B101/B138

AUTHOR: Borodkina, M. M.

TITLE: New method for the quantitative estimation of textures

PERIODICAL: Zavodskaya laboratoriya, v. 28, no. 6, 1962, 688 - 694

TEXT: A simpler method for the quantitative estimation of textures based on C. G. Dunn's method (J. Appl. Phys., 25, 2, 233 (1954)) is proposed. This requires neither determination of the intensity of the amorphous state nor calculation of the intensities according to L. G. Schulz (J. Appl. Phys., 20, 1030 (1949)). The analysis is conducted directly on the basis of the pole figure recorded (Fig. 5). The volume V_A, corresponding to the share of a certain orientation A, is determined approximately by planimetering the partial volumina V_1, V_2, V_3, ..., $V_1 = \frac{1}{3} f_1(h_1 - h_2)$ being a cone, the other volumina being cylinders: $V_2 = 0.5(f_1 + f_2)(h_2 - h_3)$, etc. f_1, f_2, ... are the basal areas of the cone and cylinders respectively, h_1 is the maximum intensity, h_2, h_3, ... are the intensities of the

S/032/62/028/006/014/025
B101/B138

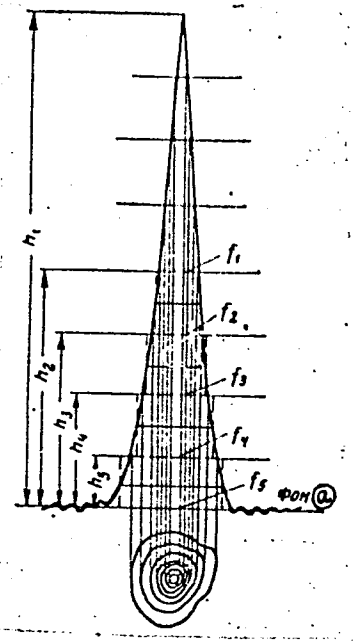
individual levels. The background level is determined on a sample with perfect texture. The investigations were conducted on an Fe - Ni alloy with 48% Ni. In order to eliminate the effect of the deviation from the ideal orientation, $\varrho = \sqrt{\alpha_{1/2}^2 + \beta_{1/2}^2}$ is calculated, where $\alpha_{1/2}$ and $\beta_{1/2}$ are the angles of the pole figure corresponding to the level with half maximum intensity. In contrast to the methods used so far, the one proposed is applicable for any configuration of the pole figure. It is mentioned as a drawback that the complete pole figure must be plotted. At the authors' Institute studies are in progress to build an apparatus for the recording of pole figures, similar to that described by A. H. Geisler (The Review of Scient. Instr., 25, 8, 727 (1954)). There are 5 figures and 1 table.

ASSOCIATION: Tsentral'nyy nauchno-issledovatel'skiy institut chernoy metallurgii im. I. P. Bardina (Central Scientific Research Institute of Ferrous Metallurgy imeni I. P. Bardin)

New method for the...

Fig. 5. Diagram of the approximation method for determining the volume V_A.

Legend: (a) background.



Card 3/3

S/776/62/000/025/010/025

AUTHORS: Bulicheva, Z. N., Borodkina, M. M.

TITLE: Investigation of the texture and magnetostriction in alloys of the Fe-Al system.

SOURCE: Moscow. Tsentral'nyy nauchno-issledovatel'skiy institut chernoy metallurgii. Sbornik trudov. no. 25. Moscow, 1962. Pretsizionnyye splavy. pp. 146-157.

TEXT: The paper describes an experimental investigation intended to develop alloys with an elevated degree of magnetostriction to satisfy the requirements arising from the increased use of ultrasonic (US) vibrations in various fields of engineering. More specifically, the objective of the investigation is the development of less costly and more readily available alloys than the K65 and K50F2 (K50F2) Fe-Co alloys which exhibit an elevated magnetostriction (70 to $90 \cdot 10^{-6}$) in the polycrystalline state. This result was sought through the obtainment of textures of the type (110) [001] and (100) [001] in Fe-Al alloys with 10% Al by employing various cold-rolling procedures and a terminal heat treatment, and also by studying the effect of these textures on the magnitude of the magnetostriction. In addition, the investigation comprised a study of the effects of various additions on the quality of

Card 1/3

the texture and the magnitude of the magnetostriction. A special rolling technology with total reduction of 60-70% and several intermediate anneals was developed to alter the characteristic (100) [011] texture with a texture of the type above-stated, to obtain values of the magnetostriction of up to $70 \cdot 10^{-6}$ in the direction of rolling. A definite relationship was found to exist between the orientation of the deformation texture and the recrystallization of the specimens investigated: (a) An intensification of the orientation (111) [1$\bar{1}$2] leads to the development of a post-anneal orientation ($\bar{1}$10) [001] + (100) [001]; (b) the intensification of the orientation (112) [110], which can be observed upon rolling with 80-90% reduction and one intermediate anneal or upon single-pass rolling with a total reduction of more than 97%, leads to a post-anneal development of complex unfavorable orientations in which the direction [100] does not lie in the plane of rolling; (c) a single-pass rolling with a reduction of appx. 97% without intermediate anneals produces a strong orientation (100) [011] which remains fixed after anneal. In this instance the greatest magnetostriction in the alloys investigated is observed at an angle of 45° to the direction of rolling. In the terminal heat treatment the rate of heating appears to exert the most substantial effect on the texture and the magnitude of the magnetostriction. A slow heating at a rate of 15°/hr leads to a significant increase in magnetostriction. Process additions (Si up to 0.8%, Mn up to 0.8%) reduce the magnetostriction in the textured Fe-Al alloy with 10% Al significantly. The investigation

was performed at the Experimental Factory of the TsNIIChM (Central Scientific Research Institute of Ferrous Metallurgy). The textures were measured by the X-ray photographic method, by means of transillumination under Mo, $K_{\alpha,\beta}$ radiation in a von-Laue-type chamber. There are 6 figures, 2 tables, and 7 references (2 Russian-language Soviet, 3 German, and 2 English-language).

L 39304-65 EWT(l)/EPA(s)-2/EWT(m)/EPF(w)/EWA(d)/EPR/T/EWP(t)/EWP(k)/EPA(bb)-2/EWA(c)/EWP(b) Pf-4/Ps-4/Pt-10 IJP(c) JD/HW

ACCESSION NR: AP5003278 S/0126/65/019/001/0152/0154

AUTHOR: Bulycheva, Z. N.; Borodkina, M. M.; Sandomirskaya, V. L.

TITLE: Investigation of the orientation and magnetic properties of Fe-Al magnetostriction alloys

TOPIC TAGS: iron alloy, magnetostriction, magnetostrictive element, heat treatment, vacuum refining, magnetic switch/Fe-Al alloy

ABSTRACT: It has been shown that an orientation of type (110) [001] + (100) [001] may be created in an Fe-Al alloy with 10% Al instead of the (100) [011] orientation which is characteristic for this alloy by using special technological treatment (rolling with cumulative reductions to limits of 60-70%, and several intermediate annealings). This type of orientation makes it possible to obtain high values of magnetostriction (up to $70 \cdot 10^{-6}$) in the direction of rolling. Grain-oriented Fe-Al alloys with such a high magnetostriction may be used for making magnetostriction converters. The authors studied the possibility for increasing the magnetostriction in Fe-Al alloys with 8-14% Al by analogous orientation. As a consequence of the fact that the direction of passive magnetization in the Fe-Al system changes at 12% Al from [100] to [111] in the ordered state (the constant of magnetic anisotropy passes through zero at 12% Al), it was to be expected that obtaining th

Card 1/2

L 39304-65
ACCESSION NR: AP5001278

orientation (100)[001] + (100) [001] would have different effects on the magnetic parameters of the alloys in the indicated range of concentrations. The alloys were vacuum smelted. Armco iron and AV000 aluminum were used as initial charge materials. The ingots were forged into sheet bars (heating temperature 1100-1150°C) and hot rolled at a temperature of 1050-1100°. Then they were subjected to "warm" rolling according to the following two sets of conditions: 1) cumulative reduction by 55-65% and two intermediate heat treatments; 2) cumulative reduction by 92% without intermediate heat treatment. The highest magnetostriction for all alloys was obtained for samples which had been rolled with intermediate heat treatment, the maximum corresponding to an aluminum content of 8-10%. Rolling without intermediate heat treatments with a total reduction of 92% leads to some increase in magnetostriction in the region from 9 to 13% Al in comparison with forged samples. The results of the study are presented in the form of a graph. Orig. art. has: 3 figures, 2 tables.

ASSOCIATION: Tsentral'nyy nauchno-issledovatel'skiy institut chernyy metallurgii im. I. P. Bardina (Central Scientific Research Institute of Ferrous Metallurgy)

SUBMITTED: 22Feb64 ENCL: 00 SUB CODE: EM, MP

NO REF SOV: 002 OTHER: 002

Card 2/2 JO

L 62111-65 EWT(m)/EWP(w)/EWA(d)/T/EWP(t)/EWP(z)/EWP(b) IJP(c) JD
ACCESSION NR: AP5004278 UR/0126/65/019/001/0152/0154

AUTHOR: Bulycheva, Z. N.; Borodkina, N. M.; Sandomirskaya, V. L.

TITLE: Investigation of the orientation and magnetic properties of Fe-Al magnetostriction alloys

SOURCE: Fizika metallov i metallovedeniye, v. 19, no. 1, 1965, 152-154

TOPIC TAGS: iron alloy, magnetostriction, magnetostrictive element, heat treatment, vacuum refining, magnetic switch/Fe-Al alloy

ABSTRACT: It has been shown that an orientation of type (110) [001] + (100) [001] may be created in an Fe-Al alloy with 10% Al instead of the (100) [011] orientation which is characteristic for this alloy by using special technological treatment (rolling with cumulative reductions to limits of 60-70%, and several intermediate annealings). This type of orientation makes it possible to obtain high values of magnetostriction (up to 70·10-6) in the direction of rolling. Grain-oriented Fe-Al alloys with such a high magnetostruction may be used for making magnetostriction converters. The authors studied the possibility for increasing the magnetostriction in Fe-Al alloys with 6-14% Al by analogous orientation. As a consequence of the fact that the direction of passive magnetization in the Fe-Al system changes at 12% Al from [100] to [111] in the ordered state (the constant of magnetic aniso-

Card 1/2

L 62111-65

ACCESSION NR: AP5004278

tropy passes through zero at 12% Al), it was to be expected that obtaining the orientation (100) [001] + (100) [001] would have different effects on the magnetic parameters of the alloys in the indicated range of concentrations. The alloys were vacuum smelted. Armco iron and AV000 aluminum were used as initial charge materials. The ingots were forged into sheet bars (heating temperature 1100-1150°C) and hot rolled at a temperature of 1050-1100°. Then they were subjected to "warm" rolling according to the following two sets of conditions: 1) cumulative reduction by 55-65% and two intermediate heat treatments; 2) cumulative reduction by 92% without intermediate heat treatment. The highest magnetostriction for all alloys was obtained for samples which had been rolled with intermediate heat treatment, the maximum corresponding to an aluminum content of 8-10%. Rolling without intermediate heat treatments with a total reduction of 92% leads to some increase in magnetostriction in the region from 9 to 13% Al in comparison with forged samples. The results of the study are presented in the form of a graph. Orig. art. has: 3 figures and 2 tables.

ASSOCIATION: Tsentral'nyy nauchno-issledovatel'skiy institut chernyy metallurgii im. I. P. Bardina (Central Scientific Research Institute of Ferrous Metallurgy)

SUBMITTED: 22Feb64 ENCL: 00 SUB CODE: EM, IP

NO REF SOV: 002 OTHER: 002

Card 2/2

Borodkina, M. S.

The temperature coefficients of photographic developments. I. Temperature coefficients in development with compounds of different selectivity. Y. L. Shekhter, and M. S. Borodkina. Zhur. Nauch. i Prikl. Fot. i Kinematograf. 1, 17-21(1956); cf. C.A. 51, 3332i.—The activation energy for the reduction of Ag halides by stannite ion in alk. soln. is very small. Therefore, this reducing agent does not discriminate between exposed and unexposed microcrystals. The high degree of selectivity of p-aminophenol is assocd. with the high energies of activation for the reduction of unexposed microcrystals of Ag halide by this developing agent. G. V. Lackey

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206510002-5"

BorodKina, M.S.

2

Temperature coefficients of photographic development with sodium stannite and *p*-aminophenol. V. I. Sheberstov and M. S. Borodkina. *Doklady Akad. Nauk S.S.S.R.* 108, 499-501(1956).—Sn^{++} in an alk. medium reduces the exposed and the unexposed Ag halides at the same rate, while *p*-aminophenol (I) is the most selective of the photographic developers. The stannite development temp. coeff. varied very little, 10-20°, at all image optical ds., while with I such low temp. coeffs. were observed only with high overexposures. The low temp. coeff. with stannite indicates a low activation energy of the Ag halides, which approaches 0. (The actual coeff. values observed were ~1.6, and were attributed to developer diffusion.) W. M. Sternberg

Vsesoyuznyy nauchno-issledovatel'skiy Kinofotoinstitut
Predstavleno akademikom V.A. Karginym
(Photography - Developing and Developers)

SHEBERSTOV, V.I.; BORODKINA, M.S.; DONATOVA, V.P.

Research on temperature factors in photographic development.
Zhur. nauch. i prikl. fot. i kin. 3 no.2:112-116 Mr-Ap '58.
(MIRA 11:5)

1.Vsesoyuznyy nauchno-issledovatel'skiy kinofotoinstitut.
(Photography--Developing and developers)

SHEBERSTOV, V.I.; BORODKINA, M.S.; DONATOVA, V.P.

Investigating temperature relationships in photographic development. Part 6: Reduction of silver bromide salts and of the silver salts of benzotriazole and 5-methyl- 7-hydroxy - 2,3,4,-triazaindolizine. Zhur.nauch. i prikl.fot i kin. 5 no.5:331-333 S-O '60. (MIRA 13:12)

1. Vsesoyuznyy nauchno-issledovatel'skiy kinofotoinstitut (NIKFI).
(Photography--Developing and developers)
(Silver salts)

SHEBERSTOV, V.I.; KHEYNMAN, A.S. [HEINMAN, A.S.]; BORODKINA, M.S.

Studying the temperature dependences of photographic development. Part 9. Energy of activation of the development of natural defects of silver halide crystals in photographic layers. Zhur.nauch.i prikl.fot. i kin. 7 no.3:182-186 My-Je '62. (MIRA 15:6)

1. Vsesoyuznyy nauchno-issledovatel'skiy kinofotoinstitut (NIKFI).
(Photography—Developing and developers)
(Silver halides)

BORODKINA, M.S.; MIKHAYLOVA, A.A.; SHEBERSTOV, V.I.

Sensitivity reaction of photographic gelatins to labile sulfur.
Zhur.nauch.i prikl.fot. i kin. 10 no.3:220-221 My-Je '65.
(MIRA 18:11)

1. Vsesoyuznyy nauchno-issledovatel'skiy kinofotoinstitut.

L 10685-63 EWP(j)/EPF(c)/EWT(m)/BDS--AFFTC/ASD--Pc-4/Pr-4--RM/WW
ACCESSION NR: AP3002402 S/0153/63/006/002/0299/0304

AUTHOR: Borodkina, N. I.; Frolov, S. S.; Mol'kova, G. N. 6,17

TITLE: Production and investigation of products based on water-soluble condensates of acetone and formaldehyde

SOURCE: IVUZ. Khimiya i khimicheskaya tekhnologiya, v. 6, no. 2, 1963, 299-304

TOPIC TAGS: reactivity, water-soluble acetone-formaldehyde condensates, resins, water-soluble condensates and phenol, water-soluble condensates and epichlorohydrin

ABSTRACT: The reactivity of VRK (water-soluble acetone-formaldehyde condensates) products was investigated; high reactivity with amines, phenols, epichlorohydrin and acid anhydrides was found. Conflicting experimental data and theoretical calculations indicate that VRK is not strictly an individual compound and carbonyl groups from other molecules are involved. Resins made from VRK and phenol or VRK and epichlorohydrin harden and can be molded similarly to ordinary phenol-formaldehyde epoxy resins, hence they can be tested under experimental conditions. Orig. art. has: 4 tables and 3 formulas.

ASSOCIATION: Ivanovskiy khimiko-tekhnologicheskiy institut. Kafedra tekhnologii khimicheskikh volokon (Ivanov Institute of Chemical Technology. Department of

Card 1/2

S/080/63/036/002/012/019
D403/D307

AUTHORS: Borodkina, N. I. and Frolov, S. S.

TITLE: Water soluble condensation products of acetone and formaldehyde

PERIODICAL: Zhurnal prikladnoy khimii, v.36, no. 2, 1963, 408-415

TEXT: The present work is concerned with the study of the conditions of synthesis, composition and properties of the water soluble CH_2O-$(CH_3)_2CO$ condensate (A). The effects of catalyst, CH_2O concentration, temperature, time and of the molar ratio of the 2 reactants (n) were investigated, finding that the best results were obtained with NaOH, taken in an amount equal to 0.005 g-moles/mole CH_2O, CH_2O concentration of 36- 37% by volume, at 40 - 45°C, with n = 1. The reactions were followed by changes in the refractive index, relative viscosity, pH, and consumption of formaldehyde. A is a neutral, polar, greenish yellow, viscous liquid, miscible with water in all proportions, which cannot be distilled or crys-

tallized, soluble in lower alcohols, glycols, glycerine, carbonyl compounds, dimethylformamide, CH_3COOH and HCOOH, insoluble in benzene, benzol, diethyl ether, with a specific gravity of 1.206 - 1.218 and a refractive index of 1.485 - 1.493. Study of molecular weight, elemental composition, specific refraction and functional group contents showed that A is not a rigidly definable compound. It has not so far been obtained in the pure state, owing to possible conversions from one form into another (by hydration or dehydration) or to possible admixtures of isomers. There are 5 figures and 2 tables.

ASSOCIATION: Ivanovskiy khimiko-tekhnologicheskiy institut (Ivanova Institute of Chemical Technology)

SUBMITTED: October 24, 1961

L 05632-67 EWT(1)/T IJP(c) GG

ACC NR: AP6024506 SOURCE CODE: UR/0181/66/008/007/2260/2262

AUTHOR: Borodkina, N. K. Strakhov, L. P.

ORG: Leningrad State University im. A. A. Zhdanov (Leningradskiy gosudarstvennyy universitet)

TITLE: Optical anisotropy of films obtained with an obliquely incident molecular beam

SOURCE: Fizika tverdogo tela, v. 8, no. 7, 1966, 2260-2262

TOPIC TAGS: antimony compound, selenide, photoconductivity, semiconducting film, optic property, photo emf, molecular beam

ABSTRACT: Since the use of obliquely incident molecular beams has been found to be the cause of the enhanced photoconductivity of thin semiconducting films produced by this method, the authors have investigated the optical anisotropy of thin Sb_2Se_3 films, which generate a high-voltage photo emf. Optical anisotropy is defined as the dependence of the coefficient of absorption of polarized light on the mutual orientation of the electric vector (E) and the projection (s) of the molecular beam on the substrate. The films were produced by evaporation on a glass substrate in vacuum, using a procedure described by V. M. Lyubin and G. A. Fedorova (FTT v. 4, 2026, 1963). The film thickness ranged from 20 to 30 nm. The anisotropy was investigated with a monochromator, polarization filter, and a photomultiplier. The difference between the absorption coefficients, obtained as the angle between E and s was varied from 0° to 90°, increased monotonically at a rate faster than linear. Tests made to ascertain that

Card 1/2

L 05632-67

ACC NR: AP6024506

3

the anisotropy was not due to the substrate, or to other extraneous effects, are described. The results show conclusively that thin semiconducting films produced with an obliquely incident beam possess optical anisotropy. The authors thank M. A. Rumsh, F. T. Novik, and V. I. Kruglov for interest in the work and a discussion. Orig. art. has: 2 figures.

SUB CODE: 20/ SUBM DATE: 21Oct65/ ORIG REF: 002/ OTH REF: 004

Card 2/2 egh

ZARETSKIY, M.R.; BORODKINA, T.V.

Effect of the duration of steam heating in curing chambers on the "uneven bead wire rings" in tire casings. Kauch.i rez. 20 no.5: 49-50 My '61. (MIRA 14:5)

1. Voronezhskiy shinnyy zavod.
(Tires, Rubber)

MORYGANOV, P.V., prof.; MEL'NIKOV, B.N., dosent; BORODKINA, V.F.

"Chemistry of dyes" by B.M.Bogoslovskii, N.G.Laptev. Revieved by P.B.Moryganov, B.N.Mel'nikov, V.F.Borodkin. Tekst.prom. 21 no.6:88-89 Je '61. (MIRA 15:2)
(Dyes and dyeing—Chemistry)
(Bogoslovskii, B.M.)
(Laptev, N.G.)
(Moryganov, P.B.)
(Mel'nikov, B.M.)

KONOVALOV, S.A.; GREBESHOVA, R.N.; BORODKINA, V.V.

Nutrition of yeasts during the process of fermentation of starchy mashes. Trudy TSNIISP no.7:28-37 '59. (MIRA 13:9)
(Yeast) (Fermentation)

KONOVALOV, S.A.; GOLUBENKOVA, N.I.; BORODKINA, V.V.

Use of phosphorus and transformation of its various forms in yeasts during fermentation. Trudy TSNIISP no. 8:11-23 '59. (MIRA 14:1)
(Phosphorus) (Yeast) (Fermentation)

KONOVALOV, S.A.; YAROVENKO, V.L.; BUROVA, M.V.; BOROIKINA, V.V.

Disinfection of green malt. Spirt.prom. 26 no.1:13-16 '60. (MIRA 13:6)

(Malt--Disinfection)

KONOVALOV, S.A.; CHESTNOV, P.G.; GOLUBENKOVA, N.I.; BOROIKINA, V.V.

Fermentation of starchy raw materials with molasses sirup added.
Spirt.prom. 26 no.7:43-46 '60. (MIRA 13:10)
(Fermentation) (Alcohol)

BORODKO I.

BOROD'KO, I.

[redacted] City beyond the Arctic Circle. Stroitel' no.12:2 of cover D '57.
(Vorkuta--Building) (MIRA 11:2)

BORODKO

BORODKO, I. (g.Vorkuta, Komi ASSR)

Builders in the polar circle enjoy illuminated newspapers with sound accompaniment. Sov. profsoiuzy 6 no.1:70 Ja '58.
(MIRA 11:1)

1.Predsedatel' mestkoma kombinata "Pechorshakhtostroy".
(Vorkuta--Building trades)

BOROD'KO, I.

On the watch for labor safety. Mast. ugl. 8 no.7:14 Jl '59.
(MIRA 12:10)

1.Sekretar' Verkutinskoge raykoma profsoyuza rabochikh ugol'noy promyshlennosti.
(Coal mines and mining—Safety measures)
(Trade unions)

NOVOKHATSKIY, A.; BOROD'KO, I.

Replies to our readers. Sov. profsoiuzy 18 no.17:44-45 S '62. (MIRA 15:8)

1. Starshiy inspektor TSentral'nogo komiteta professional'nogo soyuza rabotnikov gosudarstvennykh uchrezhdeniy (for Novokhatskiy). 2. Neshtatnyy korrespondent zhurnala "Sovetskiye profsoyuzy", g.Vorkuta (for Borod'ko).

(Wages—Transportation, Automotive) (Trade unions) (Embezzlement)

NEKAYEV, P. (st. Shakhun'ya, Gor'kovskoy zheleznoy dorogi); BUROV, V. (g.Kyzyl); SILIN, I., neshtatnyy instruktor; BORODʹKO, I. (g.Vorkuta); NAZAROV, N. (g.Ural'sk); MOSHKOV, P.; SHMYGANOVSKIY, V.

People talk, advise and criticize. Sov. profsciuzy 18 no.4: 26-27 F '62. (MIRA 15:3)

1. Belgorodskiy oblastnoy sovet profsoyuzov po Korochanskomu rayonu (for Silin). 2. Neshtatnyy korrespondent zhurnala "Sovetskiye profsoyuzy" (for Borod'ko, Shmyganovskiy). 3. Predsedatel' soveta fotokluba Vologodskogo Dvortsa kul'tury zheleznodorozhnikov (for Moshkov).

(Trade unions)

UDOVITSKIY, S.; SHEMETS, A.; LILOV, A. (Chernovtsy); KLINKOV, I. (Serpukhov Moskovskoy obl.); TERTYCHNYY, F. (Makeyevka Donetskoy obl.); BORODIKO, I. (Vorkuta, Komi ASSR); BAZUKIN, P. (Novokuznetsk, Kemerovskoy obl.)

From the editor's mail. Sov. profsoiuzy 20 no.2:32-33 Ja'64. (MIRA 17:2)

1. Zaveduyushchiy yuridicheskim sektorom Ukrainskogo respublikanskogo soveta professional'nykh soyuzov, Kiyev (for Udovitskiy). 2. Konsul'tant yuridicheskogo sektora Ukrainskogo respublikanskogo soveta professional'nykh soyuzov, Kiyev (for Shemets). 3. Neshtatnyy korrespondent zhurnala "Sovetskiye profsoyuzy" (for Brorod'ko).

BORODʹKO, I.

Forces have grown. Sov.shakht. 13 no.2:23-24 F '64. (MIRA 17:3)

1. Starshiy inzh. otdela organizatsii truda i zarabotnoy platy kombinata ugolʹnykh trestov i predpriyatiy Vorkutskogo rayona.

BORODKO, I.S.; ROSSIYSKIY, I.F.; POLIVANOV, M.N.

Crimping diaphragms on a hydraulic press with a metal die. Av. prom. 26 no.8:87-88 Ag '57. (MIRA 15:4)
(Diaphragms (Mechanical devices))

BORODʹKO, N.

Miners' preventorium in Vorkuta. Okhr. truda i sots. strakh. 3 no.9:57 S '60. (MIRA 14:4)

1. Sekretarʹ Vorkutinskogo raykoma profzoyuza rabochikh ugolʹnoy promyshlennosti.
(Vorkuta—Coal miners—Diseases and hygiene)

BORODKO, P., [Barodka, P.]

An enthusiast. Rab.i sial. 36 no.5:4 My '60. (MIRA 13:10)
(Soligorsk--Construction workers)

BOROD'KO, S.L.; SAMSONOVICH, L.G.

Compatibility of the live vaccines, pf plague, tularemia, brucellosis, and anthrax under experimental conditions in guinea pigs. Sbor. nauch. rab. Elist. protivochum. sta. no. 1:193-203 '59. (MIRA 13:10)

(PLAGUE) (TULAREMIA) (BRUCELLOSIS) (ANTHRAX) (VACCINES)

BOROD'KO, S.L.; PILIPENKO, V.G.; POLYAKOVA, A.M.; VAL'KOV, E.G.

Immunological changes in persons inoculated epicutaneously against plague, brucellosis, and tularemia. Sbor. nauch. rab. Elist. protivochum. sta. no. 1:205-213 '59. (MIRA 13:10)
(IMMUNOLOGY) (PLAGUE) (BRUCELLOSIS) (TULAREMIA)

STRACHKOVA, V.P.; BOROD'KO, S.L.

Harmlessness of the vaccine strain Brucella abortis 104 "M" and the serological reorganization appearing following its subcutaneous and epicutaneous use. Sbor. nauch. rab. Elist. protivochum. sta. no. 1:215-220 '59. (MIRA 13:10)
(BRUCELLA) (VACCINES)

BOROD'KO, S.L.

Experimental brucellosis in the social vole (Microtus socialis) and the common vole (Microtus arvalis). Sbor. nauch. rab. Elist. protivochum. sta. no. 1:221-238 '59. (MIRA 13:10)
(BRUCELLOSIS) (FIELD MICE)

LARINA, V.S.; BOROD'KO, S.L.

Q fever in some districts of the Kalmyk A.S.S.R. Sbor. nauch. rab. Elist. protivochum. sta. no. 1:245-249 '59. (MIRA 13:10)
(KALMYK A.S.S.R.—Q FEVER)

BORODʹKO, S.L.; SAMSONOVICH, L.G.

Influence of revaccination on immunological changes in animals vaccinated with complex vaccines. Zhur. mikrobiol., epid. i immun. 32 no.9:42-47 S '61. (MIRA 15:2)

1. Iz Elistinskoy protivochumnoy stantsii.
(VACCINATION) (PLAGUE) (TULAREMIA)
(BRUCELLOSIS) (ANTHRAX)

BOROD'KO, S.L.; SAMSONOVICH, L.G.

Duration of the immunity in guinea pigs vaccinated with a complex live vaccine against plague, tularemia, brucellosis and anthrax. Zhur. mikrobiol., epid. i immun. 33 no.2:25-28 F '62. (MIRA 15:3)

1. Iz Elistinskoy protivochumnoy stantsii.

(IMMUNITY)
(PLAGUE--PREVENTIVE INOCULATION)
(TULAREMIA) (BRUCELLOSIS)
(ANTHRAX--PREVENTIVE INOCULATION)

BORCD'KO, N.I.; [illegible]ONOVICH, L.S.

Duration of immunity in following simultaneous epidermic vaccination against plague, tularemia and brucellosis. Zhur. mikrobiol., epid. i immun. 40 no.10:70-73 O '63.
(MIRA 17:6)

1. Iz Blistinskoy protivochumnoy stantsii.